Assessing Vision in Patients With Alzheimer's Disease

ALZHEIMER'S DISEASE is a disorder of unknown etiology affecting more than 2 million people in the United States. It produces devastating emotional, physical, and financial tolls on patients, their caretakers, and the community in general.

The diagnosis of "probable Alzheimer's disease" can be made clinically, but a histopathologic examination is required to make the definitive diagnosis. A patient generally has progressive memory problems and other cognitive deficits. Visual impairments have also been described, but these have usually been characterized as spatial agnosias and been attributed to deficits of cerebral cortex function. Impairments in contrast sensitivity and in the flash visual evoked potential have been described. Recent histopathologic evidence shows that Alzheimer's disease involves the primary visual pathways. Clinical studies have also found a variety of visual impairments in patients with Alzheimer's disease.

Patients with Alzheimer's disease often complain of difficulties in reading and visual orientation. Because patients with mild disease usually have near-normal Snellen visual acuities and normal-appearing optic nerve heads, however, their symptoms are usually dismissed as nonophthalmic. Studies have shown that although mildly or moderately impaired Alzheimer's patients have normal Snellen acuity, they have deficits in contrast sensitivity functions, visual evoked responses, and eye movement control. Patients with moderate or severe cognitive difficulties are more difficult to evaluate, yet it can be shown that they have the impairments described above to a more serious degree as well as dyschromatopsia and losses in visual acuity. In only the most advanced cases of Alzheimer's disease is optic atrophy noted. Future such studies may lead to the development of a battery of visual tests useful in distinguishing Alzheimer's disease from other common dementias. At present, one has to consider Alzheimer's disease in the differential diagnosis of bilateral optic neuropathy in a patient with dementia.

ALFREDO A. SADUN, MD, PhD
Los Angeles

REFERENCES

Cogan DG: Visual disturbances with focal progressive dementing disease. Am J Ophthalmol 1985; 100:68-72

Hinton DR, Sadun AA, Blanks JC, et al: Optic-nerve degeneration in Alzheimer's disease. N Engl J Med 1986; 315:485-487

Nissen MJ, Corkin S, Buonanno FS, et al: Spatial vision in Alzheimer's disease—General findings and a case report. Arch Neurol 1987; 42:667-671

Sadun AA, Brochert M, DeVita E, et al: Assessment of visual impairments in patients with Alzheimer's disease. Am J Ophthalmol 1987; 104:113-120

Wright CE, Harding GF, Orwin A: The flash and pattern VEP as a diagnostic indicator of dementia. Doc Ophthalmol 1986; 62:89-96

Managing Congenital Cataracts

INFANTS, unlike adults, are visually immature. During the first two to four months of life, visual areas within the brain—the lateral geniculate nucleus and the striate cortex—are rapidly developing in response to visual information from the retina. A blurred or distorted retinal image during this critical period can result in abnormal neurologic development and permanent vision loss, clinically known as amblyopia. A cataract large enough to block the pupil will distort the retinal image, thus causing disruption of normal visual development and poor vision due to amblyopia. The presence of a cataract during the neonatal period is an ophthalmic emergency, and a cataract should be surgically removed as soon as possible—that is, within the first few weeks of life.

Modern microsurgical techniques and pediatric anesthesia allow safe and effective early treatment of cataracts. Postoperatively, infants are fitted with extended-wear contact lenses to replace the natural lens removed during the cataract operation. In unilateral cases, the good eye is occluded part of the time to stimulate the vision of the amblyopic eye. Early detection and modern surgical techniques have dramatically improved the previously poor prognosis in these patients. Even infants who are intolerant of contact lenses can now be managed with the use of an epikeratophakic graft. A donor cornea is lathed into the shape of a contact lens and sutured onto the cornea, thus providing a "living" contact lens.

Even with the modern advances, the most important aspect of the management of congenital cataracts is early detection. Neonates should be routinely screened for a normal red reflex. Only through the cooperative effort of pediatricians and ophthalmologists can results be improved in this difficult group of patients.

KENNETH W. WRIGHT, MD
Los Angeles

REFERENCES

Arffa RC, Marvelli TL, Morgan KS: Keratometric and refractive results of pediatric epikeratophakia. Arch Ophthalmol 1985; 103:1656-1659

Bellar R, Hoyt CS, Marg E, et al: Good visual function after neonatal surgery for congenital monocular cataracts. Am J Ophthalmol 1981; 91:559-565

Parks MM: Visual results in aphakic children. Am J Ophthalmol 1982; 94: 441-449

Update on Extended-Wear Lenses

THERE HAS BEEN CONSIDERABLE INTEREST in bacterial infections of the cornea associated with extended-wear contact lenses. These lenses are of a higher oxygen permeability that allows them to be worn overnight. Until recently, the lenses were approved for wear for as long as 30 days between removing and cleaning. Clinical experience, however, has shown that some patients can wear these lenses longer than 30 days without difficulty, whereas other patients have problems with overnight wear on a single occasion. A number of reports have noted serious gram-negative infections of the cornea—particularly *Pseudomonas*—occurring in both younger persons who wear the lenses for cosmetic reasons and older persons with aphakia, with the rate of serious eye infections and complications being greater in the aphakic group. Several reports have linked *Acanthamoeba* to serious corneal infections and ulcers occurring in extended-wear lens wearers who wear their lens daily. At higher risk are those who use homemade saline solutions for lens cleaning and those who bathe in nonchlorinated swimming pools and commercial whirlpools while wearing their lenses. Many eyes have been injured, and corneal transplantation needs to be done frequently to rehabilitate such eyes.

Contact lens-induced ulcers occur in about 2% to 7% of patients who use extended-wear lenses for aphakia. The rates are lower in the cosmetic extended-wear group, but the exact incidence is not known at this time. Studies are currently being done that will more clearly delineate the risk of infection in cosmetic wearers of these contact lenses.

There is considerable interest in using gas-permeable rigid lenses for extended-wear use. These are hard lenses that contain either silicone or fluorocarbon to make them more